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PROJECT MODELS--A FACILITATIVE ENVIRONMENT FOR INCREASING EFFICIENCY OF PUPIL LEARNING AND FOR CONDUCTING EDUCATIONAL RESEARCH AND DEVELOPMENT.

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PROJECT MODELS IS A COOPERATIVE PROJECT OF THE UNIVERSITY OF WISCONSIN R/D CENTER ON COGNITIVE LEARNING, LOCAL SCHOOL SYSTEMS, AND THE STATE EDUCATION DEPARTMENT. THE PROJECT'S AIM IS TO INCREASE THE EFFICIENCY OF STUDENT LEARNING AND TO FACILITATE RESEARCH AND DEVELOPMENT ACTIVITIES BY REORGANIZING THE STRUCTURE OF THE ELEMENTARY SCHOOL INTO RESEARCH AND INSTRUCTION UNITS, WHICH CONCENTRATE ON READING AND LANGUAGE ARTS, ARITHMETIC, AND SCIENCE. THESE UNITS, COMPOSED OF A UNIT TEACHER SPECIALIST, CERTIFIED TEACHERS, TEACHER AIDES, AND STUDENTS, REPLACE THE TRADITIONAL SELF-CONTAINED CLASSROOMS AND REDEFINE PERSONNEL ROLES AND RELATIONSHIPS. THE PAPER SPECIFICALLY DESCRIBES A PROTOTYPAL BUILDING ORGANIZATION AND INSTRUCTIONAL PROGRAM AND DISCUSSES THE TRAINING OF UNIT LEADERS AND THE ROLES OF THE BUILDING PRINCIPAL AND TEAM MEMBERS. IT ALSO OUTLINES THE REQUIREMENTS AND CONDITIONS FOR SUCH A "FACILITATIVE ENVIRONMENT." (NH)

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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PREFACE

Here is a story, a very short story in words and pictures, of the first R & I Units. The story will be most interesting to the participants, the pioneers in the schools who transformed ideas into practices. They all contributed to the plot and theme. They are the main characters. Like many stories, other observers and prospective participants may find this one interesting.

What is an R & I Unit? It is a unique organization of school people and students within a school building. What are the primary objectives of an R & I Unit? First, to develop an exemplary instructional program and to continuously improve it through a program of research, development, and innovation. Second, to provide a facilitative environment in which to conduct research and development activities of the Center. What are the main components of an exemplary instructional program? Students, teachers, instructional materials, equipment, subject matter, teaching methods, learning conditions, other personnel in the school system, and personnel outside the school, including family and neighborhood. All of these must be considered in organizing and maintaining an exemplary instructional program in a school; all are research and development concerns. Many persons from the R & D Center with specialized knowledge in subject fields and capabilities in research design contribute to the functioning of R & I Units. Included here are principal investigators Sam Blount, Wayne Otto, George O'Hearn, Milton Pella, and Tom Romberg, postdoctoral fellows Glenn Tagatz and James Wardrop, and Laboratory of Experimental Design personnel, Mary Quilling and Tom Houston.

Will schools, completely organized into R & I Units, provide the organization that will enable the school, with cooperation from the R & D Center or other agencies, to find solutions to its significant problems of instruction? Will these schools also be the laboratories of the R & D Center to find answers, with cooperation of the schools, to significant questions about human learning and instruction? These questions are not answered in this report since data for the first year field testing are just being analyzed. But part of the story is told in the next pages. The concept has caught on quickly, since the first units were started in the second semester of 1965-66. Nine elementary school buildings in four Wisconsin cities will be organized in this manner in 1967-68, when prototypical programs in reading, arithmetic, science, and social studies will be started. In three junior high schools, a program in English will be initiated. Data from the first field testing will be available in August, 1967, and much more will be available in August, 1968.

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I. INTRODUCTION

Project MODELS is a cooperative activity of the Wisconsin R & D Center for Cognitive Learning, local school systems, and the State Department of Public Instruction. Project MODELS has two main objectives: to increase efficiency of student learning in subject matter of high cognitive content and to provide a facilitative environment for carrying out research and development activities of the R & D Center and the local schools. In Project MODELS all the factors involved in improving instruction within a school building are considered, including the facility itself, the equipment, the instructional material, the instructional program, the instructional personnel, and the students. In addition, Project MODELS is concerned with relationships of the personnel in a school building and representatives of the central staff, the R & D Center, the Department of Public Instruction, and others.

The primary emphasis in Project MODELS is upon improving efficiency of student learning in the elementary schools, kindergarten through Grade 6, through a systematic program of research and development. Knowledge about cognitive learning generated in several projects of the R & D Center is focused upon improvement of learning in three subject areas--reading and other language arts, arithmetic, and science--and upon improving learning conditions in three related areas--motivation, individualization of instruction, and concept learning. Social studies and creativity are receiving lesser emphasis currently. Also, three junior high schools are participating in an English project and have that part of their program organized into R & I Units. Thus, a considerable part of five major R & D projects of the Center will be executed in Project MODELS schools during the next years.

The secondary emphasis is upon developing a new instructional organization, redefining roles of some educational personnel, and establishing new roles so that improvement of learning may proceed more systematically. Roles of the central staff, the building principal, and certified teachers are being redefined. New roles are being considered for teacher leaders and noncertified personnel. A new organization within a school building and a new kind of relationship among

representatives of the central staff, the school building, and other agencies are also being developed and tested. Time, space, equipment, and supplies are not being studied intensively but are being manipulated on an intuitive basis to achieve a better instructional program for the students.

This total educational approach to improving children's cognitive learning is being applied in a number of school buildings in line with the program objectives of the R & D Center and the educational objectives of local school systems. The concepts and procedures are described more fully throughout the remainder of this paper.

THE RESEARCH AND INSTRUCTIONAL UNIT

The basic instructional unit is the R & I Unit. It replaces the self-contained classroom. A unit is comprised of a unit leader, two or more certified teachers, one or more noncertified adults, and the students. The number of certified and noncertified personnel varies according to the number of students. In general, the greater the number of personnel, the more time is required to get a fully functioning, cooperative unit.

Responsibilities of the instructional personnel are outlined later in considerable detail. Here sufficient information is provided to understand the unit organization. The unit leader is responsible for the instructional program of the unit. The leader teaches from one-half to two-thirds time and is thus available during regular school hours for other activities. The certified teachers carry out the usual instructional responsibilities, operating as a unit rather than as self-contained classroom teachers. The noncertified personnel perform a variety of secretarial, management, and other school-related activities under the leadership of the unit leader and teachers. The best features of team teaching are incorporated into the instructional practices of the unit. Features going beyond the best team teaching practices are described in the next sections.

II. THE PROTOTYPICAL BUILDING ORGANIZATION

Figure 1 outlines the prototypical organization for an elementary school of 500 to 600 students. Instead of the usual 20 to 30 self-contained classes there

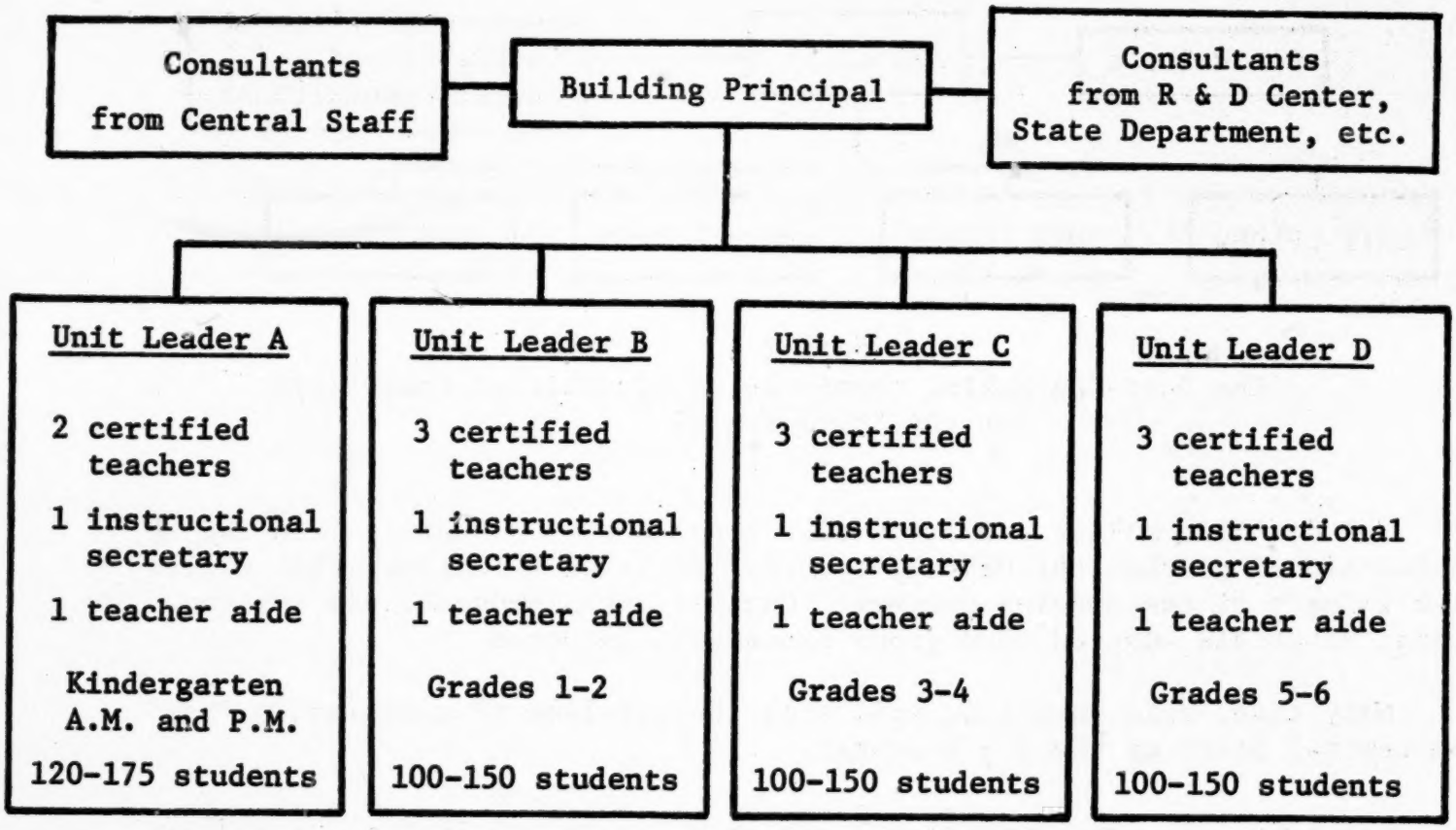


Figure 1. Prototypical Organization of Elementary School

are four units. Each unit is comprised of the leader, certified teachers, non-certified personnel, and students.

The instructional decision-making committee of the school is comprised of the building principal and the unit leaders. It meets at least once per week and may meet daily. This instructional decision-making committee works with consultants from the central staff, the R & D Center, the State Department of Public Instruction, and other agencies as shown in Figure 2. Decisions made by the committee are executed through the unit leader, each unit leader being responsible for instruction of the children in the particular unit.

Organizing a building into units and having the decision-making committee (a) provides time for planning the instructional program and decision-making during regular school hours, (b) utilizes key certified personnel in planning the school-wide program, (c) increases the effectiveness of the building principal

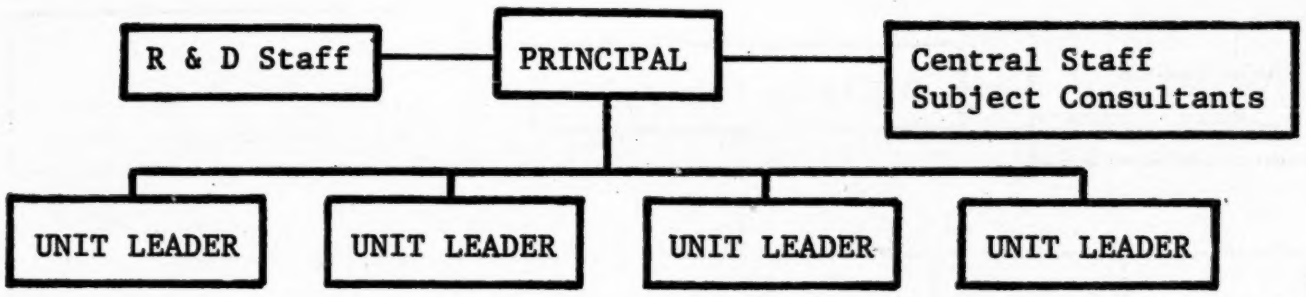


Figure 2
The Decision-Making Committee (Instructional Committee)
for the Local School

The decision-making committee of a local school can articulate the instructional program through all levels. It is in this group that evaluation is made of the ongoing program. Changes are discussed, new instructional materials adopted, and group procedures adjusted.

Many times this committee will seek the services of consultants from the central staff or the R & D Center.

At times they will include the entire staff of the school for cooperative planning and evaluating.

and the central staff in improving instruction, and (d) utilizes noncertified persons to perform a variety of duties in the total educational program. However, the same organization provides the facilitative environment in which the staff of the Center can execute controlled experiments and developmental research cooperatively with the school people. The planning thus far among the staff of the R & D Center and the local school systems is to focus upon improving instruction in one but not more than two subject fields in each school building during a given year.

Staff of the local schools see that this type of organization will provide opportunity for continuous curriculum development and improvement, preschool through Grade 6. Also, for the first time, the probability of providing for individual differences is greatly enhanced. One reason teachers have not individualized instruction is that they have not found ways to organize their

classroom to make use of the information they have about differences among the children. Individualization of instruction utilizes a combination of total group (large group), small group, and tutorial activities. Also, individualization requires reliable diagnostic procedures, adequate instructional materials, and more flexible utilization of personnel, space, and time. All of these are more readily accomplished in the prototype school organization.

III. A PLAN FOR ORGANIZING A SCHOOL INTO UNITS

Figure 1 was presented earlier as a prototypical building organization for an elementary school of about 500-600 students. Instead of the usual 20-30 self-contained classrooms there are four units. The procedures for changing from a self-contained organizational pattern to the unit organization vary according to the size of the school system; however, a few suggestions may be appropriate for general consideration.

1. Members of the central staff meet with R & D Center staff to discuss a general plan. Selection of the schools, including the principal, rests with the central staff. In some cases only newly built schools will be organized in this manner. Here the facilities are adequate to utilize the staff effectively. The resource center and the removable walls provide for individual, small-, or large-group instruction. Instructional media such as listening centers and audiovisual equipment are also readily available.

Scheduling needs to be thought of in large blocks of time where opportunities for flexible grouping are possible. Teachers should not have to fit a rigid time schedule. Flexibility allows for lessons to be planned on the basis of pupils' needs rather than scheduling a certain time for the entire class.

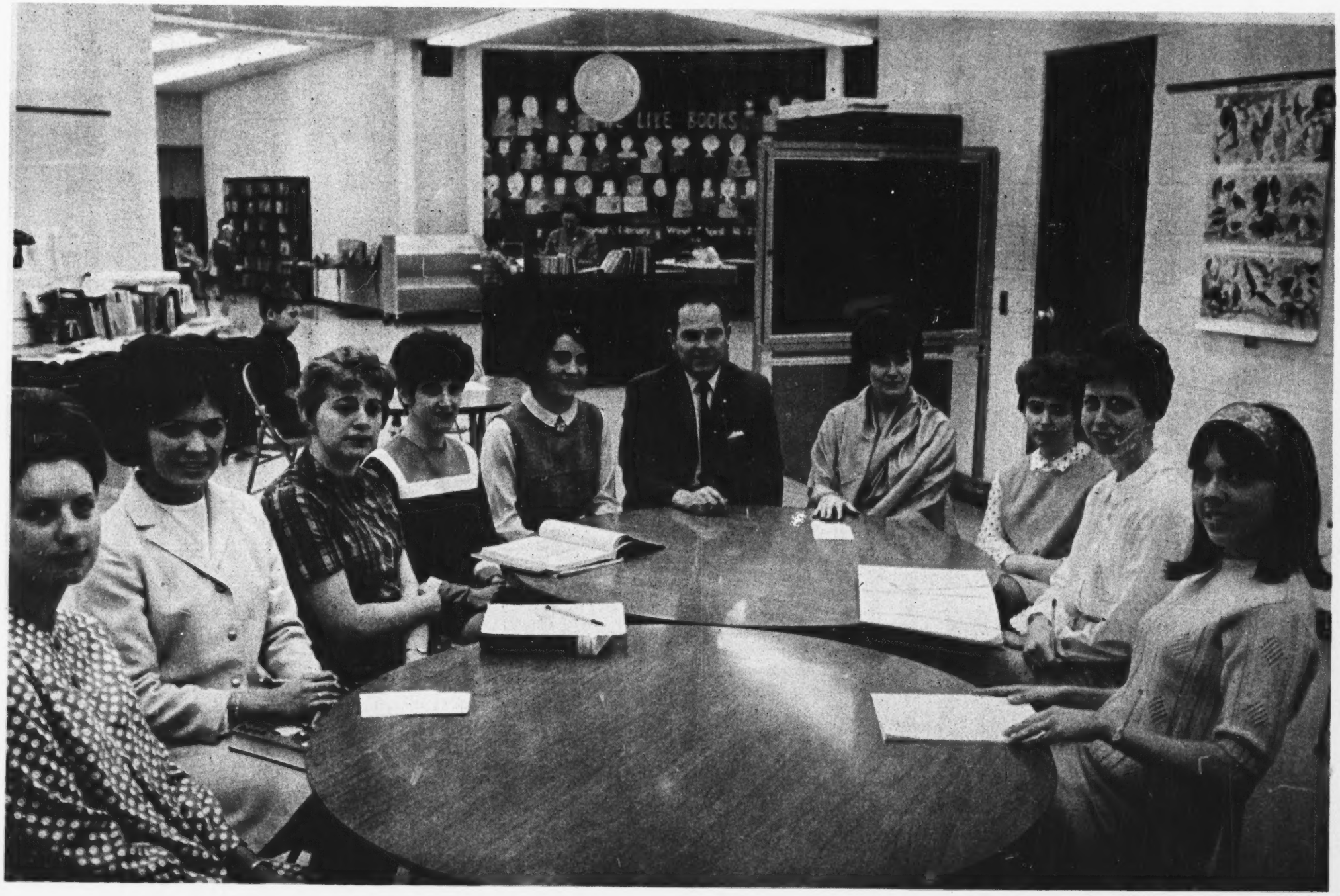
When several schools are organized in this manner, a central staff coordinator may be required. The coordinator assumes leadership in relating the local program with the R & D Center. Also, if unit leaders are selected who have not previously had training, an inservice program or on-the-job program is required. In some schools monthly meetings called by the coordinator with all the principals and unit leaders have provided an opportunity for a unified program. Such a meeting also serves as a valuable sharing and informing time.

2. As soon as the buildings and the principals are identified, the appropriate central staff coordinator, curriculum consultants, the building principals, and representatives of the R & D Center meet together to plan the program. The principal of the school is the key person to a successful, well-implemented program. He needs to be enthusiastic about unit teaching and well informed about the instructional program. He is the administrator and coordinator and must exercise more responsibility for instructional improvement than many principals now do. At the same time, he must be willing to delegate responsibilities and provide support to the unit leader.

3. Unit leaders are normally selected by the central staff and the building principal. In case the central staff selects the unit leaders initially, the unit leader and the building principal should have an opportunity to confer about the assignment. Once the unit leaders are selected, the decision-making committee of the local school building is complete. An inservice, or on-the-job, educational program starts at this point for the particular committee. Some assistance from the central staff is probably necessary.

4. Teacher selection for each unit typically involves the central staff, the building principal, and the unit leaders. The amount of participation varies. Regardless of who does the selection, the teachers to be included in a unit must be made aware of the unit concept and must be informed about the general plans. It should be possible for a teacher not to accept this type of assignment and also to transfer to another school. It seems desirable to have one beginning teacher in a unit and one master teacher, who might well have been a unit leader but who does not wish to carry the added responsibilities within the unit. The latter is a stabilizing influence and provides good support to the unit leader. It may not be wise to include a male teacher in a unit that has a female leader. Male unit leaders seem to be widely accepted by both teachers and principals. It does not seem advisable to place two or three teachers in the same unit who have taught together for ten or more years as self-contained classroom teachers in the same building but have not cooperated on instructional matters.

As soon as the teaching staff of each unit is identified, time should be arranged for the unit to meet and plan prior to the opening of the school term. A one-day workshop is much better than nothing.



The Decision-Making Committee makes efficient use of the principal's time.

5. The selection of the noncertified personnel may be done by the building principal in consultation with the unit leaders. The prototype organization shows two noncertified personnel for each unit. One of these should be a clerical aide, who would assist with the general noninstructional activities and assist with the mechanical tasks such as record keeping, preparation of materials, etc. The clerical aide could be assigned to two units, perhaps, rather than one for each unit. Qualifications should include a liking for children in addition to specific abilities such as typing, etc. The second nonprofessional is referred to as a teacher aide. It is not possible this early to state definite guidelines or responsibilities of the teacher aide, since much of what is expected of an aide will depend upon her capabilities and previous education. An outline of general areas of participation in the educational program is given in another section under responsibilities of noncertified personnel.

6. Inservice or on-the-job education is essential throughout the first year for the entire staff. A workshop or seminar prior to the opening of the school term will be helpful. The participants here will probably include (1) central staff personnel, (2) the building principals, (3) the unit leaders, (4) the teachers, (5) the noncertified personnel, and (6) any subject consultants to be involved in the program. Activities at such a workshop include (1) orientation of the total plan and the objectives, (2) establishment of rapport for all personnel involved in the project; (3) orientation about instructional units, and (4) clarification of roles and responsibilities of each staff member.

IV. A PLAN FOR DEVELOPING A PROTOTYPICAL INSTRUCTIONAL PROGRAM

Previously a prototypical organization was presented (see Figure 1), whereby complete elementary schools may be unitized. One reason local school officials are enthusiastic about this organizational pattern is that they see an opportunity to develop a continuous unified instructional program and also to individualize it. Within this organization is a new instructional decision-making committee (see Figure 2), which is composed of the principal and the unit leaders. Some decisions about the instructional program are made within this committee, but often they seek the services of consultants from the R & D Center and the local central

staff. It is within this committee that the framework for developing a unified curriculum can be organized. An appropriate plan, used in developing the reading program at Huegel Elementary School of Madison, Wisconsin, involved these steps:

Step I. Clarification of the major goals or objectives of total school program. The building decision-making committee and central staff.

Step II. Identification of main concepts and cognitive skills of the reading program. The building decision-making committee and consultants from R & D Center and central staff.

Step III. Definition of reading objectives in specific, behavioral terms. The building decision-making committee and consultants from the R & D Center and central staff.

Step IV. Construction of appropriate diagnostic instruments. The building decision-making committee and consultants from the R & D Center and central staff.

Step V. Identification and development of appropriate instructional units and materials for all concepts or skills. Building decision-making committee and the instructional staff.

Step VI. Planning for utilization of resource center. Building decision-making committee and instructional staff.

Step VII. Outlining a plan for placing children in the program on the basis of diagnostic testing. Building decision-making committee and the instructional staff.

Step VIII. Planning for continuous evaluation and feedback on each student. Decision-making committee and instructional staff.

Step IX. Execution of the instructional program. Unit leaders and the instructional staff.

The preceding program requires individualization. Individualizing instruction in the R & I Unit is one of the primary objectives of the new organization. Individualization requires cooperative planning by the instructional staff and others. Instructional problems must be resolved within the unit to secure maximum benefits for each individual pupil. Having several teachers' insights and experiences in the subject areas as well as knowledge about the individual child is most advantageous. Individualization requires diagnosis of each child's characteristics and providing appropriate instruction based on the diagnosis. During the 1966-1967 school year the R & I Units have put considerable effort and time in diagnosing where students are and what they need. In this type of program the unit leader takes on quite a new role. She becomes the analyzer and prescriber

Self selection and self pacing--the key to individualization.

for each individual student and communicates this knowledge to the other teachers, who plan with her appropriate instructional materials and methods. In many cases where the unit leader has been capable in asserting this leadership and presenting it to other teachers, an almost complete new program is taking effect within the unit. The unit leader assumes responsibilities for individualizing in these various ways:

I. Determine how far each student has progressed.
II. Diagnose weaknesses that are evident in the student's learning.
III. Determine how effective the instructional materials and methods are.
IV. Locate new instructional materials.
V. Continuously evaluate each student in terms of the instructional objectives.
VI. Provide continuous feedback to the staff members and cooperatively plan with them an appropriate instructional program.

V. OTHER TYPES OF UNITS

Most school systems do not have research and development capabilities readily accessible in the form of an R & D Center, a college, a state department, or a regional laboratory. They may prefer to organize a school into units that concentrate on instruction, or development, or innovation, rather than research. We have pointed out that the present R & I Units serve as a facilitative environment for controlled experimentation and developmental research of the R & D Center. Eliminating this function might make it possible to reduce the number of unit leaders or to increase the amount of time the unit leader actually works with the children.

Regardless of what the unit might be called or how a school might be organized into units a few points are worthy of consideration.

A most critical need in education today is to recruit and keep in the teaching profession a much larger number of more able young people. This probably cannot be accomplished until there is a differentiation of roles and pay according to amount of work and responsibility assumed. The unit leader is conceived of as a teacher leader, not a supervisor or administrator, who will be paid more than the usual teacher salary and will also eventually be

certified. Until more young people perceive greater opportunities for professional realization and monetary rewards in teaching, our recruiting efforts will be seriously hampered and the best results of research and development will not reach many children. Inservice education is an endless, ineffective operation when there is a 20-30% annual turnover of teachers and beginning teachers are given as much responsibility as veterans for instructional decision-making.

Most schools need an input of information and capabilities from an outside source. Institutions that prepare teachers need a closer relationship with schools in order to do a more effective job of building a teacher education program in line with the current educational scene. Most teacher education institutions have strength in at least one field such as language arts, science, arithmetic, or social studies. It is possible that a large number of teacher education institutions could work effectively on innovative and developmental activities with schools organized in this pattern.

The cost of education continues to rise. We are at the beginning of the technological era in education when computers and other equipment may be installed and maintained in the schools at very high cost. Every school system should have a school building of this type, with some assistance from a college or other agency, in order to evaluate the effectiveness and proper utilization of expensive equipment prior to committing the entire school program to it.

The preceding comments indicate that a school organized in the manner suggested, or modified to meet situational characteristics, has a significant place in the educational scene today. Further, the explosion of knowledge, the improvement in teaching-learning processes, and the massive introduction of educational equipment require cooperative activities among local schools and other agencies such as colleges, state departments of public instruction, R & D Centers, and Regional Laboratories. Tinkering with one or two elements of a total system, such as the textbooks, programed material, audiovisual equipment, teacher aides, or inservice education does not yield high rewards.

VI. STARTING UNITS IN OTHER SCHOOL SYSTEMS

The program objectives of the R & D Center do not permit the starting of units in other school systems by the R & D Center staff. The R & D Center is

not providing monetary support to the local schools for any of the units next fall. It is, however, providing consultant assistance in the four school systems, and parts of five main research and development projects of the Center are closely tied to schools organized in this manner. The five projects are in arithmetic, reading, science, and concept learning in the elementary school and in English in the junior high school

Representatives of the R & D Center and the State Department of Public Instruction are meeting to consider the role of the State Department in organizing elementary schools in the present pattern in other school systems of Wisconsin. The R & D Center will continue to provide information as rapidly as it becomes available regarding the prototype organization and the results of the various research and development projects previously listed. Persons interested in observing an inservice training program during the current summer may make arrangements with Mr. Lloyd Johansen of the Racine Unified School District No. 1 to observe the program during the period June 12 to August 4. In addition, the operation of the prototype organization may be observed next year in the Janesville Public Schools under their Title III program. The individualized reading program and the use of various personnel may be observed next year in two Madison Public Schools. Thus, schools completely organized in the unit pattern may be observed in the four school systems during the 1967-68 school year.

Throughout the 1967-68 school year 4 to 6 seminars will be held by the R & D Center for the unit leaders and other staff of the four school systems. Interested persons may attend one or more of these seminars. Principally, then, the R & D Center is providing printed information, holding conferences, and serving as a clearing house for persons who wish to secure further information about the instructional programs and the unit organization itself.

VII. TRAINING UNIT LEADERS

As indicated elsewhere the unit leader is a certified teacher who is better prepared than most teachers in the various subject matter fields and in educational methodology. In addition, the unit leader must be able to work effectively with others. We see the unit leader continuing to acquire new knowledge throughout

his professional career much the same as does the university professor, the physician, and other professional people.

Unit leaders thus far have been selected by the staff of the local school system. The R & D Center has provided an 8-week summer institute for the unit leaders. This 8-week summer session materially assists the unit leader in making the transition from full-time classroom teacher to unit leader. The R & D Center conducts six to eight seminars for unit leaders during the school year. In addition, staff of the R & D Center meet with each unit about once per month to deal with a variety of instructional, research, and development matters. Members of the central staff also meet frequently with the unit members, and the school systems have provided various types of inservice programs.

We are not yet ready to commit ourselves to a masters program to prepare unit leaders. At present, we would recommend a flexible program such as this:

(a) 3-6 semester hours in each (1) human learning; (2) child development; (3) measurement, statistics, or evaluation--a total of 12 semester hours.

(b) 6-9 semester hours in a subject field and 3-6 semester hours in educational methods.

VIII. FIELD TESTING R & I UNIT CONCEPTS

A plan for field testing R & I Units was developed by postdoctoral fellows James L. Wardrop, Glenn E. Tagatz, and others and is incorporated in Working Paper #4 of the R & D Center. At the end of this paper are presented Tables 1 and 2 and Appendix A from Working Paper #4. They show the plan and some of the instruments used in the field testing during the current year. Briefly, the purpose of the field testing is to determine how effective the R & I Unit is in performing its instructional functions in the school and its additional research, development, innovation, and diffusion functions. Preliminary data are being gathered during the current year and a more extensive program of field testing will be undertaken during the 1967-68 school year. Kinds of information being secured during the current year are as follows:

1. Characteristics, including achievement level, of the students at the time of entering the unit.
2. Characteristics, including achievement level, of students towards the end of the school year.
3. Characteristics of the instructional program, personnel, facilities, and equipment within the buildings housing the units.
4. Characteristics of the school system.
5. Relevant conditions in the home and community related to the educational program.

These data will be summarized and reported during the summer of 1967.

The increase in the number of units and the projected plans for next year suggest that the organization is a potentially useful one. In the second semester, 1966-67, 12 units were started in 8 elementary school buildings. In the current year 23 units are operating in 16 elementary schools. The general plan is to discontinue most single units in a school building and to concentrate the research and development efforts in school buildings organized completely in the unit pattern. The projections in this regard are as follows: One building of 5 units in Janesville; one building in Manitowoc; four buildings, each with 4 units in Racine; and two buildings with a total of 8 units in Madison.

The Co-Director for Research of the R & D Center has cooperated with the local schools in planning Title III projects. In Racine a summer inservice program of 8 weeks will be conducted to prepare all of the preceding personnel with Title III support. Pilot and demonstration programs of the prototype organization

and instructional programs will be carried out during the school year in Janesville and Madison. Research and development will proceed during the school year in Manitowoc with some Title III support. The R & D Center will continue to participate in the field testing of the total school organization and the related prototypical instructional programs in these four settings.

Based on informal experience up to the present time the R & I Units are executing the instruction, research, development, and innovation functions exceedingly well. Preliminary standardized and local achievement testing indicates that the children learn at least as well or better in R & I Units than in self-contained classes. The R & I Unit provides an excellent facilitative environment for controlled experiments and also for development research. During the current year, all units in the elementary schools are concerned with two main emphases: improvement of instruction through individualization and the establishment of a more adequate motivational system. The innovative function is also readily observable. In every unit materials and activities different from those in self-contained classrooms are being used.

In addition to the preceding types of information being gathered in the field testing it is apparent from observation that participation in the activities is accompanied with high enthusiasm by the teaching staff, the building principal, and the central staff. There appears to be much higher commitment to improvement of education through research and development. Many more hours than normal are being spent by the school staff to improve educational opportunities.

The effects cited above require further validation and the field testing will continue through the 1967-68 school year. It may be that the most efficient pupil learning and greater enthusiasm on the part of the staff represent the Hawthorne effect. A principal goal of both the R & D Center staff and the local school staff is to develop and maintain higher enthusiasm and greater commitment on the part of both the children and the teachers toward the improvement of learning efficiency.

IX. ROLES AND RESPONSIBILITIES OF VARIOUS PERSONNEL IN R & I UNITS

The preceding discussion indicates that personnel in a unitized school operate somewhat differently from the usual pattern. A total systems approach to improve instruction requires redefinition of roles and also the development of new roles. In the next pages certain responsibilities of the central staff, the building principal, the unit leader, the teacher, and the noncertified personnel are outlined. Only those responsibilities especially related to starting the prototype school organization are indicated.

RESPONSIBILITIES OF CENTRAL STAFF

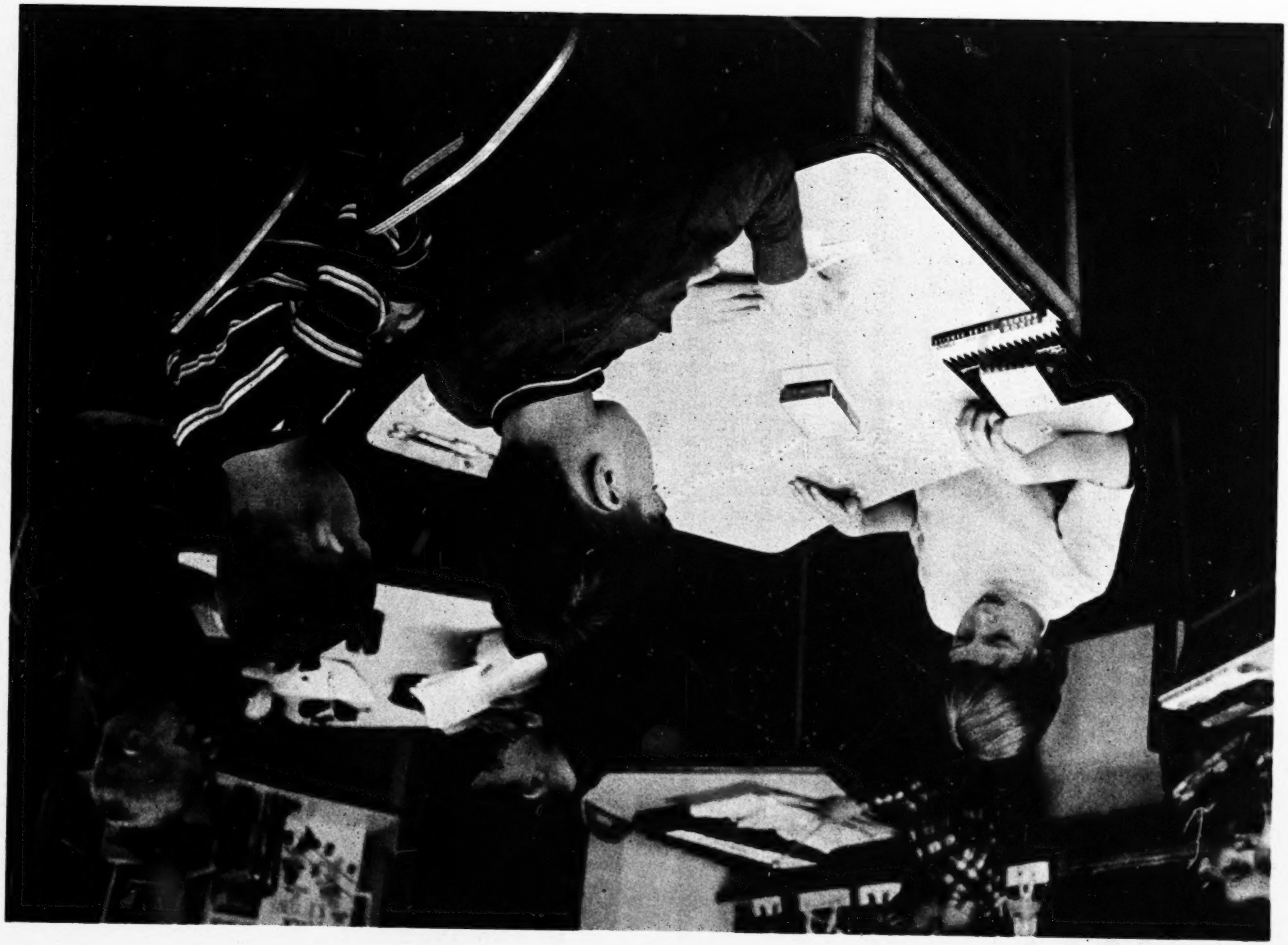
A few areas of central staff responsibility are outlined in connection with starting a unitized school as outlined in the preceding section. The manner in which leadership is exercised and by whom varies with the size and other characteristics of the local school system. The five areas of central staff leadership mentioned below are not exhaustive and have been drawn from experiences during the last two years.

1. Leadership in the instructional program.

Leadership is exercised in three main ways: (a) careful selection and subsequent support of the building principal, the unit leaders, and instructional staff, (b) providing adequate facilities, equipment and supplies, and (c) providing expert consultant assistance as needed. It is not enough for the central staff to give verbal support, the "green light," to the building principal and the instructional staff; expert knowledge and various forms of concrete assistance are required.

2. Encouragement and support for research, development, and innovation.

Planning and participating in workshops or seminars with the building personnel is essential in the early planning of any type of project. Subject specialists, research personnel, and others from the central staff may serve as consultants. It is important in large systems not to have all consultants converge on the same building in the same week. Improvement efforts require coordination. For research, development, and innovation to proceed effectively, system-wide guidelines and prescriptions regarding textbooks and methods are removed as necessary to improve instruction; innovation and research attitudes are encouraged.



OPPORTUNITIES UNLIMITED

for each individual student

to pursue interests and develop skills

3. Released time for unit leaders and teachers.

Some released time for planning should be available for the teachers. Throughout the year, the unit leader must attend some seminars and workshops outside the school building and will often use central building libraries, test files, etc. All teachers, of course, should have some time for planning during the school day. In order to improve instruction through cooperative efforts, it is essential to have time to plan.

4. Open lines of communication.

Communication among the personnel of the units, the building principal, and the central staff is essential. Previously seminars and workshops were mentioned. In addition when difficult decisions are required where differences among the instructional staff are involved, the building principal or the appropriate central staff member must be consulted so that decisions can be made and implemented. Interpersonal interactions, including disagreements, are more frequent in a unit arrangement than among self-contained classroom teachers, each of whom proceeds independently.

5. Clarification of roles.

The roles of the individuals within the school building and central staff require explicit definition. Provisions must be made for transferring personnel, both instructional and administrative, who prefer, after experience, not to continue. One way to eliminate many problems is to select a building staff who are enthusiastic about the organization. Some school systems may prefer to initiate this type of organization in new school buildings.

RESPONSIBILITIES OF THE BUILDING PRINCIPAL

The principal is the key person in starting and continuously strengthening a prototypical school organization. He is the instructional leader who presides at meetings of the instructional decision-making committee, although he may delegate this responsibility occasionally to a unit leader. At the same time, he recognizes that excellent unit leaders should have subject matter knowledge in one or more fields and instructional skills that he does not. In the prototypical organization, the building principal must exercise greater leadership in regard to several items.

1. Staffing.

A unit should be staffed by teachers who want to be in a unit. A beginning teacher, another with a year or two of experience, a mature teacher who does not desire leadership, and a vigorous unit leader more quickly organize effectively than does a group of seasoned teachers of many years of self-contained classroom experience. Careful attention to initial staffing and keeping in close touch with each unit's activities pay high dividends. The central staff and building principal must agree on how and when to replace a unit leader, a teacher, or aide who for any reason seriously impedes the functioning of the unit.

2. Encourage research, development, innovation.

The building principal takes the initiative in informing the parents about these programs. However, the unit leaders can be especially helpful to the building principal. Encouragement and support of the staff from the building principal are especially critical when decision-making is slow and arduous and when best efforts do not meet with immediate success.

3. Physical facilities and equipment.

A working space or station is needed for the unit leader, each teacher, and the aides. Movable partitions and accessibility to building resources are essential. Appendix A, used in field testing during the current year, is a checklist used for assessing the adequacy of the facility and equipment.

4. Instructional equipment and materials.

Improved instruction, research, development, and innovation require a variety of equipment and materials of high quality. In this connection, the prototype organization provides the local school systems with opportunity to evaluate new textbooks and other materials, equipment, etc., before school-wide adoption.

5. Scheduling.

It is helpful if at least one hour per week during school hours is set aside when all the personnel of a unit may confer and plan. Special music, art, foreign language, and physical education teachers may be scheduled to permit this. If the time cannot be found during school hours, the building principal, not the unit leader, is responsible for making certain that the entire staff of the unit is in attendance throughout the scheduled period.

6. On-the-job and inservice training.

The principal can work with the unit leaders in arranging inservice programs through workshops, seminars, and the like. On-the-job learning is the principal means for inducting beginning teachers and aides into the unit.

RESPONSIBILITIES OF THE UNIT LEADER

The unit leader is a new role. The unit leader has responsibility related to all the functions of an R & I Unit, namely, instruction, research, development, innovation, and diffusion.

A. Instruction

1. Assume leadership in developing, executing, and evaluating a prototypical instructional program in the unit, including objectives, materials, equipment, and activities. Here the unit leader works closely with available subject matter specialists, the building principal, and others. The unit leader is administratively responsible to the building principal.

2. Coordinate the diagnosis of learning problems of children and the development of appropriate individualized programs, so that each student learns well and simultaneously develops a buoyant and healthy personality. School psychologists, guidance workers, and others contribute to this area of concern.

3. Assume leadership in initiating, establishing, and maintaining good home-school relations. Social workers, and other specialists as available, can contribute as effectively or more effectively than when working with teachers singly.

4. Teach about half-time, or in other ways be directly involved with the children.

5. Utilize a portion of the remaining half-time (a) to act as liaison between the building principal or staff and teachers (and students) in his unit; (b) to meet with staff members in the unit to plan instruction and to enhance the understanding of, and direction given to, individual pupils; and (c) to meet with the building principal and other unit leaders.

The principal is actively involved in the instructional program.

The Unit leader needs to be actively involved in the instructional program.

B. Research

1. Plan research activities in the R & I Unit with appropriate personnel from the unit, the building, the central staff, and the R & D Center.

2. Coordinate the execution of research within the R & I Unit.

3. Guide the administration of experimental treatments--instructional methods, materials, media--by sub-experimenters (teachers or others) to insure continuous adherence to the specified experimental design and to a schedule for collecting information.

4. Participate in the collection and, as time permits, the analysis of information collected.

C. Development

1. Plan the development activities with members of his unit, building principals, the central staff, and the Center.

2. Coordinate the development of a prototypical instructional system within his unit, including a statement of objectives, the assessment of the capabilities of students, the instructional program, and evaluation procedures.

3. Participate directly in preparing instructional materials, diagnostic procedures, measurement instruments, etc.

D. Innovation

1. Coordinate the introduction of novel procedures and materials, particularly in connection with the development of a prototypical instructional system.

2. Stimulate the invention of new instructional procedures within the unit.

3. Keep abreast of innovations throughout the school system, the state, and nation through visits, conferences, and reading.

E. Diffusion

1. Provide for the proper briefing of observers of the R & I Unit.

2. Participate in the planning and actual diffusion of promising practices within the school building and within the system as appropriate.

GPO 805-848-4

DESIRED CAPABILITIES AND CHARACTERISTICS OF THE UNIT LEADER

Unit leaders as a group should receive higher salaries than do teachers as a group. Building principals already do, while noncertified personnel properly receive lower stipends than teachers. The unit leader should receive a higher salary because he earns it through meeting expanded professional responsibilities of the type previously outlined. Also, he knows more about instruction, research, development, and innovation. Further, the unit leader works more hours per week and more weeks per year. Although certification of unit leaders is not yet finally decided, the unit leader should be selected carefully in terms of the desired capabilities and characteristics next enumerated. It should be apparent also that the unit leader must continually improve his professional capabilities by pursuing further education and gaining relevant experience during the school year and summer. Many teachers who are committed to a career of teaching (this is only a small percentage of the national total) could qualify as unit leaders if they desired to assume the additional responsibilities, if they were willing to work eleven of twelve months each year, and if they continuously and systematically extended their knowledge and capabilities. It is critical to recognize that the unit leader is an instructional leader, not a supervisor or administrator. Eleven characteristics should be considered in the selection of unit leaders:

1. Teacher certification.
2. Three or more years of successful teaching experience.
3. Graduate degree, or progress toward one for beginning specialists.
4. Graduate training in the areas of learning, curriculum and instruction, and research.
5. Graduate training in a relevant subject field.
6. Commitment to a life-time career in teaching.
7. Positive attitudes toward research, development, and innovation.
8. Flexibility and inventiveness in the adaption of learning methods, materials, and procedures to experimental situations.
9. Ability to recognize and utilize the resources of the unit personnel.
10. Ability to maintain effective interaction with other teachers in the unit, the building principal, children, parents, research personnel, and liaison personnel.
11. Sensitivity to individual learning problems and training in methods of alleviating them.

RESPONSIBILITIES OF THE TEACHER

Working as a member of an R & I Unit provides the teacher great opportunity to function at a truly professional level. The beginning teacher also is effectively inducted into the teaching profession as a member of a unit. Responsibilities of the unit teachers are assumed according to level of knowledge and competence in teaching. In addition to the usual responsibilities the teacher in the R & I Unit is especially involved in the following matters.

1. Instructional decision-making

The unit leader and the teachers comprising the staff meet together to decide how to execute the total instructional program. In the unit, more than in the self-contained classroom, the teacher has the time and opportunity to participate more fully in selecting the instructional materials and designing the educational experiences for children.

2. Diagnosing student characteristics

In the past heavy reliance has been put on the use of standardized tests, while insufficient attention has been given to observing the performance of the child as a basis for determining the kind of instructional program that may be best for him. All the unit teachers, as well as the unit leader, contribute to securing a better understanding of each child and executing an appropriate instructional program.

3. Research, development, and innovation

Teachers, like unit leaders and most building principals, have not been prepared to design and execute educational research. However, teachers can carry out procedures reliably that are necessary in executing a research project. Also, they have many excellent researchable ideas. In the R & I Unit also they have opportunity for developing their own ideas more fully and trying them out.

4. Sharing of ideas

The self-contained classroom situation has not permitted much sharing of ideas among teachers because of time, facility, and other considerations. In the R & I Unit time is available for teachers to discuss their plans and activities and also to observe one another. Exchange of ideas is essential.

5. Cooperative actions

One balky teacher in a unit can destroy the effectiveness of the instructional program and also vitiate a controlled experiment or developmental research. Each member of the unit must contribute ideas and support them; this inevitably and properly leads to some disagreements. However, when the decision has been made to execute a program of instruction or some other project, each teacher is ethically responsible for performing to the best of his ability.

RESPONSIBILITIES OF NONCERTIFIED PERSONNEL

The two main classes of nonprofessional persons in R & I Units are instructional secretaries and teacher aides. The instructional secretary performs a number of responsibilities of a clerical type such as keeping attendance records, collecting and keeping records of special money from the students, duplicating materials, making lists of pupil supplies, typing, filing, etc. The teacher aide is first responsible to the building principal and then the unit leader. The unit leader, in turn, is responsible for the most effective use of the time of the teacher aide. Thus, the building principal and the unit leader determine the responsibility of the aide. The precise responsibilities of teacher aides vary greatly and are directly related to the background of training and experience of the aide. No common set of activities can be prescribed for teacher aides. The aide with a college degree in a subject field such as science will perform different responsibilities from the high school graduate who has no work in science after the ninth grade. The following represent areas of possible participation by teacher aides; no one aide is likely to participate in all of them.

1. Classroom routines and management

Housekeeping chores connected with lighting, ventilation, cleanliness, instructional materials, supplies, chalkboards, plants, etc. may be performed by some aides. Also, an aide may provide assistance to children in connection with caring for clothing, moving from one part of the building to another, receiving attention from a specialist such as the nurse or social worker. Lunchroom activities also may utilize the service of an aide.

A well trained instructional aide can provide an extra pair of eyes and ears.

2. Use of materials

Depending upon the level of competency as judged by the building principal and unit leader, some aides may assist with audiovisual materials, library activities, programed instruction, mechanical devices, etc.

3. Playground and gymnasium

Some aides may assist the teacher in work with individuals, small groups, and large groups on the playground and in the gymnasium.

4. Independent study and correction of papers

Some aides may give help to individuals, for example, in securing material, in locating information, and by providing reinforcement for good performance, conduct, and work effort. Also, student papers may be corrected by aides.

5. Foreign language

An aide who speaks a foreign language well may serve as an interpreter and helper to the child who cannot speak English. This may be especially helpful when no member of the instructional staff speaks the language. (Housewives with college degrees and competence in a second language are providing invaluable assistance to many children during their first months in this country.)

X. CONDITIONS NECESSARY FOR A FACILITATIVE ENVIRONMENT

Because the central focus of the Wisconsin R & D Center is on cognitive learning, the facilitative environment created by the R & I Unit must be conducive to development, innovation, and research in this area. Among conditions which lead to such an environment are: staff characteristics, pupil characteristics, facilities, and flexibility of the organizational structure of the R & I Unit.

Staff. Willingness to develop, execute, and evaluate the effectiveness of new ideas is a basic requirement for all staff members in R & I Units. As Project MODELS has proceeded during the current year, initial efforts at innovation and development have come primarily from the Units themselves. In focusing their attention upon problems of vital concern to the Unit, the staff have become intimately involved in innovative and developmental activities.

Pupils. A most important aspect of the R & I Unit is its effect on individual students. The focus on cognitive learning by the Center results in pupil achievement being a primary concern. One of the benefits of this new organiza-

tion has been the opportunity for teachers to evaluate more thoroughly each pupil in the Unit and to tailor the instructional program of the Unit to meet the needs of these individuals. The field testing program which is being conducted this year and will be expanded next year has as its objective the assessment of the effectiveness of this approach in providing the best possible instruction for every student in the R & I Units.

Facilities. The physical plant in which R & I Units are located has an influence on the activities of the Unit. Physical characteristics which seem to be desirable include: (1) an area available in which all the students in the Unit can be assembled at one time; (2) classrooms of more traditional size for smaller groups of students; and (3) space in which teachers can work with very small groups--for example, four or five students--on a more individualized basis. In addition to this, in order to develop, through the program of research and innovation, the best possible instructional framework for pupils of an individual Unit, certain equipment requirements must be met. Much of the necessary equipment has been and is being secured through Title III and, in certain instances, Title I sources. Facilities, while important, appear to be secondary to staff and flexibility requirements.

Flexibility. The single most important characteristic of an R & I Unit is the flexibility which it both requires and makes possible. This includes flexibility in grouping the pupils, in scheduling, and in the role of the teacher in the classroom. Through flexible grouping, it is possible to provide the kind of instruction which is most appropriate for a given group of students for a given subject content. For example, students may have new material introduced in large group instruction, then be divided into smaller groups for more intensive and individual instruction. In some curricular areas, much of the instruction can be conducted with large groups, while in other curricular areas, the most effective instructional organization is the small group. The R & I organization makes it possible to group and regroup students much more freely than can be done in the traditional self-contained classroom. A second kind of flexibility is flexibility in scheduling. When several teachers are responsible as a group for the instruction of a number of students, one teacher may provide remedial reading instruction while another provides enrighment activity in arithmetic, and a third teacher may introduce a new social studies unit to a third group. When assessment indicates that certain students would profit from further

instruction while others are prepared to move ahead, it is possible to regroup in order to accomplish both of these objectives simultaneously. A third aspect to flexibility is the flexibility of teacher roles. Since this has been discussed previously, no more will be said about it.

It is obvious that for an R & I Unit to succeed, flexibility is essential. Staff members, building administration, and central staff must be willing to allow the kind of organization and reorganization within the Unit which has just been described. Such an environment, it is felt, will be the most effective in providing a situation in which good experimental design can be introduced and in which significant questions about the educational process can be answered.

The past year has seen an evolution of ideas about the R & I Unit as a facilitative environment for development, innovation, and experimentation. Evaluation of this evolving concept is being undertaken in the form of simple measurements, teacher judgment, and controlled research. Results thus far are promising.

TABLE 1

Locations of R & I Units, Control Classes, and Respective Grade Levels, Racine

R & I Units	Control(s)	Level
Franklin	Stephen Bull (Giese)	Kindergarten
	Stephen Bull	Grade 2
Giese	Roosevelt	Grade 3
	Roosevelt	Grade 4
Howell	Winslow	Grade 2
	Stephen Bull	Grade 5
Stephen Bull	Howell	Primary (nongraded)
	Howell	Grade 3
Winslow	Franklin	Grade 5

TABLE 2

Achievement Testing, Racine

Level	Pretests	Posttests
Kindergarten	Quick Test	Lee Clark Readiness
Grade 1	Quick Test Kuhlmann-Anderson Lee Clark Readiness	Stanford, Primary I
Grade 2	Kuhlmann-Anderson Stanford, Primary I	Stanford (Alt. Form)
Grade 3	Kuhlmann-Anderson	Stanford, Primary II
Grade 4	Kuhlmann-Anderson Stanford, Intermediate I	Stanford (Alt. Form)
Grade 5	Kuhlmann-Anderson Stanford, Intermediate I	Stanford (Alt. Form)

GPO 805-848-3

APPENDIX A

RESEARCH AND DEVELOPMENT CENTER
FOR LEARNING AND RE-EDUCATION
THE UNIVERSITY OF WISCONSIN

1404 REGENT STREET
MADISON, WISCONSIN 53706
PHONE 262-4901 / AREA 608

(Unit Leader)
(Individual Address)

Dear _____:

The purpose of this checklist is to help evaluate the operation of the R & I Units. Your responses will be examined by your central staff and by the R & D Center in an attempt to determine the adequacy of facilities, equipment, and supplies to accomplish objectives of R & I Units.

The completion of this checklist is to be a cooperative activity between building principals and Unit leaders. It is important that you reach agreement regarding each response before returning the checklist to the R & D Center in the enclosed envelope.

We thank you in advance for your timely reply.

Sincerely yours,

GT
Enclosure

Name of School_____

Level of R & I Unit_____

Number of personnel in addition to the unit leader:

1. Teachers_____
2. Teacher aides_____
3. Interns_____
4. Children_____
5. Other (specify)_____

1. Check the characteristics of the facility utilized by the unit:

	YES	NO
a) There is a station or room for each certified member of the unit (one can be smaller than a regular classroom).	____	____
b) The rooms are on the same floor and are adjacent to each other or nearly so.	____	____
c) All the pupils can simultaneously meet in one or two of the rooms.	____	____
d) The typical daily pattern is for the pupils to meet in more than one room.	____	____
e) The typical daily pattern is for the teachers each to be in more than one room.	____	____
f) The typical daily pattern is for the teacher to teach more than one group.	____	____

2. Check the availability and quality of the following instructional equipment and materials in the R & I Units:

	Easily Available		Of High Quality	
	YES	NO	YES	NO
a) 35 mm. projector and appropriate films	____	____	____	____
b) 16 mm. projector and appropriate films	____	____	____	____
c) Tape recorder	____	____	____	____
d) Record player and appropriate records	____	____	____	____
e) Overhead projector	____	____	____	____
f) Textbook and other printed materials	____	____	____	____
g) Other instructional materials	____	____	____	____
h) Supplies for teacher	____	____	____	____
i) Listening kits	____	____	____	____
j) Study carrels or other facilities for individual study	____	____	____	____

3. Check the average number of times per month during regular school hours that the following person or persons meet with the unit leader alone, or with the unit leader and the other members of the unit, to discuss or plan the various elements of the unit:

	With Unit Leader alone			With Unit Leader and other members of the unit		
	0 - 4	5 - 10	11 +	0 - 4	5 - 10	11 +
Building principal	____	____	____	____	____	____
Central staff personnel	____	____	____	____	____	____
R & D Center personnel	____	____	____	____	____	____
Parents of children	____	____	____	____	____	____
Others	____	____	____	____	____	____
Teachers in the unit	____	____	____	Not relevant		

4. Check the procedures used for determining membership in the unit:

a) Initiative for the formation of the unit came from	Central Staff	Building Principal	Teacher
	_____	_____	_____
b) The teacher was given an option regarding participation in the R & I Unit	YES	NO	
	_____	_____	
c) In my judgment the R & I Unit staff desires to continue in an R & I Unit	YES	NO	
	_____	_____	

GPO 805-648-2